

3. (Unchanged) The compensated nut of Claim 1, further including one or more slots extending along at least a portion of a top side of the nut, each of the slots configured to receive one of the strings of the instrument.

4. (Unchanged) The compensated nut of Claim 3, wherein each of the slots is aligned with one of the intonation portions.

5. (Unchanged) The compensated nut of Claim 1, wherein the intonation portions are cut-out sections which have a depth between about .001 inches and about .150 inches.

6. (Unchanged) The compensated nut of Claim 1, wherein the intonation portions are cut-out sections which include a first side wall and a second side wall located in the front side of the elongated body of the compensated nut.

7. (Unchanged) The compensated nut of Claim 6, wherein the side walls are generally parallel and the side walls are joined by a lower surface.

8. (Unchanged) The compensated nut of Claim 6, wherein the side walls are between about .010 inches and about .200 inches in length.

9. (Unchanged) The compensated nut of Claim 6, wherein the side walls are generally the same length and the side walls are joined by a curved lower surface.

10. (Unchanged) The compensated nut of Claim 1, wherein the intonation portions include an opening in the top surface of the nut.

11. (Previously Amended) The compensated nut of Claim 1, wherein the intonation portions comprise a plurality of projections that extend outwardly from the nut.

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12. (Twice Amended) A guitar, comprising:

a body;

a neck connected to the body;

a bridge connected to the body;

a compensated nut connected to the neck, the compensated nut including an elongated body with a length sufficient to extend across at least a portion of the neck of the guitar, the elongated body having a plurality of fixed intonation portions with different dimensions according to the desired pitch of the stringed instrument and the plurality of fixed intonation portions being

configured such that a line extending through the plurality of fixed intonation portions does not form a sinusoidal arc;

a plurality of strings passing over the bridge and the nut; and

a tuning key attached to each string, the tuning keys adapted and configured to adjust the tension in the plurality of strings.

13. (Unchanged) The guitar of Claim 12, wherein the compensated nut has a front side, a back side, a top side, and a bottom side, and wherein the intonation portions are located at least partially on the front side of the elongated body.

14. (Unchanged) The guitar of Claim 12, wherein the number of intonation portions in the compensated nut is equal to the number of strings of the guitar.

15. (Unchanged) The guitar of Claim 12, wherein the intonation portions comprise a plurality of cut-out sections.

16. (Amended) A lute-type instrument, comprising:

a body including a bridge;

a neck attached to the body;

a compensated nut connected to the neck, the nut having a front side and a bottom side, the nut including one or more cut-out sections on the front side, the one or more cut-out sections being disposed such that a line intersecting said one or more cut-out sections does not form a sinusoidal arc; and

a plurality of strings extending from the bridge to the nut.

17. (Unchanged) The lute-type instrument of Claim 16, wherein the bottom side of the nut contacts the neck of the instrument and the front side of the nut faces the body of the instrument.

18. (Unchanged) The lute-type instrument of Claim 16, wherein the cut-out sections have different dimensions according to the desired pitch of the instrument.

19. (Unchanged) The lute-type instrument of Claim 16, wherein the number of cut-out sections in the nut is equal to the number of strings of the instrument.

20. (Twice Amended) A method of making an instrument with a plurality of strings, the instrument including a body, a neck and a bridge, comprising:

CH mounting a nut to the neck of the instrument, the nut including an elongated body with a front side, a back side, a top side, and a bottom side, the body having a length sufficient to extend across at least a portion of the neck of the stringed instrument, the nut including one or more fixed intonation portions on the front side of the elongated body, the intonation portions having different dimensions according to the desired pitch of the stringed instrument and the different dimensions of the intonation portions resulting in a nonsinusoidal configuration among the intonation portions;

extending the strings from the bridge to the nut; and

attaching the strings to the bridge and the neck of the instrument.

21. (Twice Amended) A nut for a stringed instrument, comprising:

an elongated body;

a plurality of slots on a surface of the body; and

fixed means for compensating the intonation of one or more strings of the instrument, the fixed means being nonsinusoidal in configuration.

22. (Twice Amended) A nut for a stringed instrument, comprising:

a substantially unitary elongated body, the body having a length sufficient to extend across at least a portion of the neck of the stringed instrument;

a plurality of slots across the elongated body configured to position corresponding strings; and

a plurality of fixed string termination points along said elongated body, each termination point corresponding to one of said plurality of slots, at least one of said string termination points offset in distance from another of said termination points with respect to a line perpendicular to said strings, and said fixed termination points defining a nonsinusoidal line with respect to said line perpendicular to said strings.

23. (Unchanged) The nut of Claim 22, wherein at least three of said plurality of string termination points are offset from each other with respect to said line.

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24. (Unchanged) The nut of Claim 23, wherein said offset is non-linear from termination point to termination point.

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25. (Twice Amended) A compensated zero fret for a stringed instrument, the stringed instrument having one or more strings, a body and a neck, the zero fret comprising:

an elongated body having a length sufficient to extend across at least a portion of the neck of the stringed instrument; and

one or more fixed intonation portions on the front side of the elongated body, the intonation portions having different dimensions according to the desired pitch compensation for each string and the intonation portions being configured such that a line extending through said fixed intonation portions does not form a sinusoidal arc.

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26. (Unchanged) The compensated zero fret of Claim 25, wherein the number of intonation portions are equal to the number of strings of the instrument.

27. (Unchanged) The compensated zero fret of Claim 25, further including one or more slots extending along at least a portion of a top side of the nut, each of the slots configured to receive one of the strings of the instrument.

28. (Unchanged) The compensated zero fret of Claim 27, wherein each of the slots is aligned with one of the intonation portions.

29. (Unchanged) The compensated nut of Claim 1, wherein the intonation portions comprise a combination of inward cut-out sections and outward projections that extend outwardly from the nut.

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### COMMENTS

In response to the Office Action mailed January 24, 2001, Applicant respectfully requests the Examiner to reconsider the above-captioned application in view of the foregoing amendments and the following comments. The amendments are clarified on the attached page entitled "**VERSION WITH MARKINGS SHOWING CHANGES MADE**", which page uses underlining to indicate insertions and bracketing to show any deletions.

#### Claims 1-6 and 10-29 Are Patentable Over LoJacono in view of Bernstein and Porter

Claims 1-4 and 10-29 have been rejected as unpatentable over LoJacono in view of Bernstein and Porter. It appears that Claims 5 and 6 also were intended to be rejected over the same combination based upon the statements made by the Examiner. Applicant disagrees with the characterization of the references and with the basis for the rejection. Nevertheless, in an effort to advance prosecution, Applicant has amended Claims 1, 12, 16, 20-22 and 25.

LoJacono taught an apparatus and method of tuning a string instrument. The apparatus included an adjustable bridge at one end of the fret board and an adjustable nut or a fixed sinusoidal nut at the other end of the fret board.<sup>1</sup> The fixed nut comprised portions that appear to extend forward of the nut.. During tuning, the adjustable bridge is first adjusted to result in perfect pitch between the adjustable bridge and the 12<sup>th</sup> fret. Because such tuning apparently left the instrument out of tune between the 1<sup>st</sup> and 12<sup>th</sup> frets, the adjustable nut or fixed sinusoidal nut was required according to LoJacono. See Col. 5, line 65 – Col. 6, line 21. The adjustable nut allows that instrument to be fully tuned by adjusting the longitudinal location of a fixed length of string, which is defined between the adjustable bridge and the selected adjustable or fixed sinusoidal nut.

LoJacono further taught at Col. 8, lines 2-31, that the fixed nut must have a sinusoidal configuration to work. The sinusoidal configuration comprised protrusions that extended toward the bridge from the nut. The ends of the protrusions defined the sinusoidal configuration. While

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the configuration of the sinusoidal line (A-A in Figure 2) would change depending upon the instrument and the string selected, the line nevertheless must be sinusoidal. In fact, LoJacono states "[t]o achieve a perfectly guitar with a fixed nut[,] it must have a specific sinusoidal configuration that would be compatible to each guitar based on a given overall scale length which is specific to that guitar." Thus, any construction of a fixed nut not having a sinusoidal configuration will not work according to LoJacono.

Bernstein taught a manual locking assembly for clamping strings of a musical instrument. The locking assembly would be positioned adjacent the fret board of the instrument between the nut and the tuning pegs. The instrument would be tuned by adjusting the tuning pegs, for instance, and then the locking assembly would clamp onto the strings to prevent undesired movement during playing of the instrument. A tunable nut was not taught by Bernstein. Rather, Bernstein was a string lock that would be used subsequent to tuning to secure the tuned strings in position.

Porter taught an adjustable nut that allowed a user to adjust the height of the strings relative to the fret board. In particular, strings have varied diameters. In order to have a level plane defined across the tops of the strings, the strings would be adjusted upward or downward with the nut. Porter did not teach that this upward and downward movement of the strings resulting in adjustments to the intonation of the instrument. Rather, Porter taught that moving the strings up and down would allow a steel used in playing a steel guitar to equally contact each string simultaneously and so that a pick used to contact the strings would contact each string with equal force.

To the contrary, each of independent Claims 1, 12, 16, 20, and 25 recites, among other limitations, limitations directed to the nonsinusoidal nature of the present nut or zero fret. The rejected dependent claims depend from the independent claims discussed herein and are allowable for at least the same reasons as the claims from which they depend. In addition, at least some of these claims recite limitations that relate to the cut-out or recessed nature of the intonation portions.

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<sup>1</sup> Upon a careful review of the reference in preparing this response, Applicant's counsel identified a discussion relating to a fixed sinusoidal nut in the reference. This teaching is contrary to Applicant's prior assertion, and to the Examiner's prior admission, that no fixed nut was taught by the reference.

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That is, one aspect of the present invention relates to extending the front surface of the nut toward the bridge such that the intonation portions can be recessed relative to the front surface of the nut.

As discussed above, neither Bernstein nor Porter disclosed a nut that altered intonation or changed pitch of strings associated with the nut. In addition, while LoJacono taught an adjustable nut that affected the pitch of the strings associated with the nut, LoJacono taught away from any fixed nut that was **not sinusoidal** in nature. Furthermore, neither Bernstein nor Porter taught anything about intonation portions and, therefore, could not have taught anything about whether the nut should be sinusoidal or nonsinusoidal in nature. Moreover, none of the applied references disclosed a fixed nut that included recessed intonation portions rather than protrusions that extended forward of the nut's front surface. Based upon this understanding of the prior art, Claims 1-6 and 10-29 are patentable over any combination of the applied references as they are directed to an arrangement that is contrary to accepted wisdom. Reconsideration and allowance is respectfully requested.

**Claims 7-10 Are Patentable Over LoJacono in view of Bernstein and Wilkenson**

Claim 7 has been rejected as unpatentable over LoJacono in view of Bernstein and Wilkenson. Claims 8-10 are presume to be rejected on this ground as well based upon the statements of the Examiner. Applicant submits that Wilkenson does not remedy the flaw in the rejection of Claim 1. Therefore, the rejection of Claims 7-10 is deficient for at least the same reason as the rejection of Claim 1. Further discussion of the basis of the rejection need not be provided in view of this deficiency. Reconsideration of Claims 7-10 is respectfully requested.

**CONCLUSION**

For the foregoing reasons, it is respectfully submitted that the rejections set forth in the outstanding Office Action are inapplicable to the present claims. Accordingly, early issuance of a Notice of Allowance is most earnestly solicited.